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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,909	11/13/2001	Masao Segawa	216095US2S	6633
22850	7590	12/01/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			DANIELS, ANTHONY J	
			ART UNIT	PAPER NUMBER
			2615	

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,909

Applicant(s)

SEGAWA ET AL.

Examiner

Anthony J. Daniels

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment, filed 9/15/2005, has been entered and made of record. Claims 1,2,4-9 are pending in the application.

2. Applicant's amendments to the drawings and title have overcome the examiner's objection.

Response to Arguments

3. Applicant's arguments filed 9/15/2005 have been fully considered but they are not persuasive. Applicant has stated that, "...one of ordinary skill would not have concluded that the spring electrodes (115) of the Tazunoki et al. reference would provide a more stable support of the image sensing device (4) of the Takachi reference, than the support of the image sensing device (4) described in the Takachi reference. The Takachi reference describes that the image-sensing device is adhesively glued to the bottom portion of the package (3). (Page 3, paragraph (0032).) One of ordinary skill in the art would not conclude that frictionally receiving the image sensing device (4) on the package (3) using the spring electrodes (115) of the Tazunoki et al. reference would provide a more stable support of the image sensing device than physically gluing the image sensing device to the package, as is taught in the Takachi reference. Additionally, since the image sensing device (4) of the Takachi reference is rigidly mounted to the package (3), then the need for a flexible electrode that is not easily broken is unnecessary due to the stationary orientation between the image sensing device (4) and the package (3). The

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spring electrodes of the Tazunoki et al. reference are advantageous for the unique nature of the packaging technique described therein, and one of ordinary skill in the art would not look to such a packaging technique to solve problems associated with the Takachi reference...". The examiner respectfully disagrees with this statement. The Tazunoki et al. reference discloses that a spring electrode can provide a stable support for the semiconductor device when it is sandwiched (unique packaging structure). It is true that when the image-sensing device (Takachi) is placed in the package of Takachi, it is sandwiched between a force of gravity and the force of the package pushing up. Therefore, a spring electrode would provide for the same stable support received by the semiconductor device in Tazunoki; furthermore, the spring electrode would also be sandwiched by the image sensing device and the package in Takachi, further exemplifying the packaging method in Tazunoki. Applicant further goes onto state that, "...the Applicants submit that modifying the Takachi reference to include the spring electrodes of the Tazunoki et al. reference would be contrary to the teachings of the Takachi reference. The Takachi reference repeatedly indicates that the distance between the surface of the image sensing device (4) and the surface of the seal glass (5) is an important dimension in order to ensure the proper focus of the device. (Page 2, paragraph (0028), and page 3, paragraphs (0031J)-(0033I.) Thus, the Takachi reference utilizes a rigid mounting of the image-sensing device (4) with adhesives in order to ensure that the image-sensing device (4) is not able to move with respect to the seal glass. The flexible spring electrodes (115) of the Tazunoki et al. reference would not provide a precise and rigid mounting location for the image-sensing device (4), which would adversely affect the focus of the device. Thus, such a modification would not only be contrary to the teachings of the Takachi reference, it would also render the device in the Takachi reference unsatisfactory for its

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intended purpose. (See MPEP 2143.01.)...”. The examiner respectfully disagrees with this statement. Takachi teaches that the distance “a” (Figure 1) is used as a reference, because when actual packaging occurs, errors are incurred, and these errors are offset by spacers (Figure 3, “19”) to achieve the predetermined value “b” (Figure 3) (see Takachi, [0032], [0033]). Also, a stable support provided by the spring electrodes, as taught by Tazunoki, would be quite enough to hold the image-sensing device in place for the movement of a camera (i.e. hand shake); furthermore, Takachi goes onto state that even when the predetermined distance “b” is set, some error is entailed, which is permissible as long as it is in within the range of the depth of focus ([0031]).

Claim Objections

4. Claim 2 is objected to for lack of antecedent basis. On line 2, “a wiring board” should be changed to “the wiring board”.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1,2,4-7,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takachi et al. (see Patent Number above) in view of Tazunoki et al. (US # 5,191,224).

As to claim 1, Takachi teaches an image pickup apparatus ([0002]) comprising: a first connector (Figure 2, engagement step portion "15") arranged on a wiring board (Figure 2, image sensing device accommodating package "3"; {*The package includes the wiring of the solid-state imaging device "4".*}); a second connector (Figure 2, engagement claws "16" and the optical holding members "8a" and "8b") including an optical lens (Figure 2, lenses "10" and "13") and being engageable with the first connector (Figure 2; [0029], Lines 1-5) and a photoelectric conversion module (Figure 2, solid-state image sensing device "4" and package "3") including a photoelectric conversion element on which light from the optical lens is incident ([0022], Lines 1-6), said photoelectric conversion module being fixedly held when the photoelectric conversion module is clamped by the first and second connectors in a state where

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the first and second connectors are in engagement and coupled relatively to each other ([0036], Lines 1-10); and an electrode electrically connected to a terminal of the photoelectric conversion element (Figure 4, *{It is inherent that there exist an electrode at the terminal of the photoelectric conversion element to transfer charge to the signal process circuit section.}*), and located at a position where the first connector is in contact with the photoelectric conversion module (Figure 2), said electrode being electrically connected to the wiring board (Figure 2; *{It is inherent that the electrode be connected to the wiring board to transfer the charge.}*). The claim differs from Takachi in that it requires that the electrode be a spring electrode.

In the same field of endeavor, Tazunoki et al. teaches spring electrodes attached to a semiconductor substrate (Col. 8, Lines 21-33). In light of the teaching of Tazunoki et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to include spring electrodes as the electrodes of Takachi, because an artisan of ordinary skill in the art would recognize that this would allow for a more stable support of a semiconductor device (see Tazunoki et al., Col. 8, Lines 21-25) and provide a flexible electrode that is not easily broken.

As to claim 2, Takachi, as modified by Tazunoki et al., teaches an image pickup apparatus according to claim 1, wherein said photoelectric conversion module comprises: a wiring board (see Takachi, Figure 2, package “3”) including an opening (see Takachi, Figure 2, opening defined by the area between the right and left engagement step portions “15”); the photoelectric conversion element (see Takachi, Figure 2, solid-state image sensing device “4”) provided for one major surface of the wiring board (see Takachi, Figure 2, the “well” of the package “3”) and including a photoelectric conversion surface that opposes the opening (see

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Takachi, Figure 2, surface exposed to the lenses of the solid-state image sensing device “4”); and a transparent member (see Takachi, Figure 2, seal glass “5”) provided for another major surface of the wiring board (see Takachi, Figure 2, area defined by the top of the right and left engagement step portions “15”) and covering both the opening and the photoelectric conversion surface (see Takachi, Figure 2).

As to claim 4, Takachi, as modified by Tazunoki et al., teaches an image pickup apparatus according to claim 1, wherein said second connector includes a lens barrel (see Takachi, Figure 2, lens barrel between the optical holding members “8a” and “8b”).

As to claim 5, Takachi, as modified by Tazunoki et al., teaches an image pickup apparatus according to claim 1, wherein said second connector includes a lens barrel (see Takachi, Figure 2, lens barrel between optical holding members “8a” and “8b”), and said lens barrel has at least one opening (see Takachi, Figure 2, aperture “14b”) which opposes the optical lens (see Takachi, Figure 2) and which is provided with a diaphragm (see Takachi, Figure 2, diaphragm “12”; [0029], Lines 1-10).

As to claim 6, Takachi, as modified by Tazunoki et al., teaches an image pickup apparatus according to claim 1, wherein said first connector includes a guide (see Takachi, Figure 2, spacer “19”; *{The spacer can be set on top of the engagement step portion “15”, thereby being included in the engagement step portion (first connector).}*), which guides the second connector to a predetermined position ([0037]).

As to claim 7, Takachi, as modified by Tazunoki et al., teaches an image pickup apparatus according to claim 1, wherein said first connector includes an elastic member (see Takachi, Figure 2, O-ring “18”) which urges the second connector toward the first connector

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when the first and second connectors are brought into engagement and coupled relatively to each other (see Takachi, [0035], Lines 12-17).

As to claim 9, Takachi, as modified by Tazunoki et al., teaches a portable electric apparatus comprising the image pickup apparatus defined in claim 1 (see Takachi et al., Figure 2)

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (US 20020044215) in view of Tazunoki et al. (US # 5,191,224).

As to claim 8, Takagi et al. teaches a method for manufacturing an image pickup apparatus (Figures 7-10), comprising: an installation step of arranging a first connector (Figure 9A, Figure 9B, wires "4" of bare IC "6") and an electronic component (Figure 9A, Figure 9B, bare IC "6") on a wiring board (Figure 9A, Figure 9B, solid-state imaging device "3"; *{It is inherent that there be wiring in the solid-state imaging device.}*) and electrically connecting the first connector and the electronic component together (Figure 9B); and an assembly step performed when the first connector and the second connector (Figure 9B, electrode "19" and lens fixing member "12") are brought into engagement (Figure 9B) and including: inserting a photoelectric conversion module (Figure 9A, 9B, bare IC "6" and solid-state imaging device "3") including a photoelectric conversion element (Figure 9, solid-state imaging device "3") on which light from the optical lens of the second connector is incident between the first connector and the second connector (Figure 9A, Figure 9B; *{Incident light is inherent on a solid-state imaging device.}*); and electrically connecting an electrode located at a position where the first connector is in contact with the photoelectric conversion module to a terminal of the photoelectric

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conversion module (Figure 9B, wires "4"). The claim differs from Takagi in that it further requires that the spring electrodes be spring electrodes.

In the same field of endeavor, Tazunoki et al. teaches spring electrodes attached to a semiconductor substrate (Col. 8, Lines 21-33). In light of the teaching of Tazunoki et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to include spring electrodes as the electrodes of Takachi, because an artisan of ordinary skill in the art would recognize that this would provide a flexible electrode that is not easily broken.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Daniels whose telephone number is (571) 272-7362. The examiner can normally be reached on 8:00 A.M. - 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

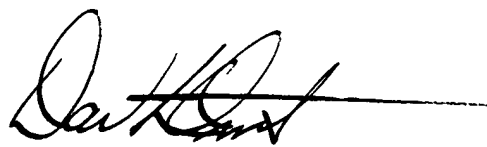
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AD

11/17/2005

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal line extending to the right.

DAVID OMETZ
SUPERVISORY PATENT EXAMINER